

REMARKS/ARGUMENTS

Claims 1-72 are pending.

Claims 1, 4-10, 14-19, 22-28, 31-38, 42-48, 51-57, 60-66, and 69-72 were rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over *Kondo*, U.S. Patent No. 6,480,523 in view of *Murai*.

Claims 2, 3, 11-13, 20, 21, 29, 30, 39-41, 49, 50, 58, 59, 67, and 68 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kondo* in view of *Murai* and further in view of *Mahany*.

A telephonic interview was conducted with the examiner on March 14, 2005. The examiner's time and attention are much appreciated. The undersigned would like to thank the examiner for the opportunity to explain the technical aspects of the present invention and of the cited art.

It is earnestly submitted that the claims as previously amended are patentably distinct over the cited art of record. Reconsideration of the claims in view of the remarks which follow is respectfully requested.

The present invention is directed to spread spectrum communications. In each of plural transmitters, a data sequence is modulated by a spreading code to produce a transmitted signal. An aspect of the present invention is the use of the same spreading code among the transmitters to produce a spread signal from a received data sequence. Claim 1, for example, recites "receiving a data sequence to be transmitted ... producing a spread signal by modulating a first spreading code onto the data sequence ... wherein the same first spreading code is used in each of the transmitters." A further aspect of the present invention is that the spreading code has a duration that exceeds the duration of a data symbol, "wherein the first spreading code spans a period of time which exceeds the time span of a data symbol" in the data sequence. *Claim 1*.

Kondo does not show “producing a spread signal ... wherein the same first spreading code is used in each of the transmitters”.

The reference to *Kondo* was cited for showing the use of the same spreading code, citing Fig. 3, block 230 and column 7, line 27 to column 8, line 17. Operation of the relevant portions of Fig. 3, namely blocks 230, 250, and 240, is given in column 7, lines 59-67:

“The coding section 240 codes the above-mentioned pilot pattern, the mobile station identifier including the identification number of the mobile station and the transmission data under the control of the control unit 250 to produce a transmission frame, in case of transmission of a call originating request and random access by use of a data packet. The coded transmission frame is subjected to a spectrum spreading process by the code spreading section 230.” (*underlining added*)

Fig. 4 shows the “signal format transmitted from the mobile station” in the *Kondo* system. The transmission frame of Fig. 4, processed according to the processes of Fig. 3, includes a PL sequence and the transmission data.

According to *Kondo*, “FIG. 5A is a diagram of a short code, FIGS. 5B-1 and 5B-2 are diagrams of pilot signal (PL) symbols, and FIGS. 5C-1 and 5C-2 are diagram of code patterns determined from the short code and the PL symbols.” *Col. 6, lines 34-37*. In addition, the pilot patterns (PL) are allocated for each mobile station. *Col. 7, line 42*. *Kondo* explains that “examples of the pilot pattern is shown in FIGS. 5A to 5C-2.” *Col. 8, line 17*. Figs. 5C-1 and 5C-2, therefore, show examples of “code patterns” used in different transmitters.

As understood from the discussion given by *Kondo* in connection with Figs. 4 and 5, a transmission frame (as shown in Fig. 4) is effectively coded by the “code pattern” shown, for example, in Fig. 5C-1. The “code pattern” of Fig. 5C-1 is produced by multiplying the short code of Fig. 5A with the PL code of Fig. 5B-1. It is submitted that the combined operation of the “coding section 240” and the “code spreading section 230” in Fig. 3, produces the same result as applying the “code pattern” from Fig. 5C-1 to the transmission frame.

The transmission frame (Fig. 4) including the transmission data therefore is modulated by the “code pattern” shown, for example, in Fig. 5C-1. The sequence shown in Figs. 5A, 5B-1, and 5C-1 constitutes the “code pattern” for one transmitter, while the sequence of Figs. 5A, 5B-2, and 5C-2 constitutes the “code pattern” for another transmitter. Since the pilot

pattern (PL) varies among the transmitters in the *Kondo* system, the “code pattern” likewise varies among the transmitters.

Kondo, therefore, does not show “producing a spread signal by modulating a first spreading code onto the data sequence … wherein the same first spreading code is used in each of the transmitters.” *Claim 1*. First, the transmission frame (including the transmission data, Fig. 4) is effectively coded by the “code pattern” (e.g., Fig. 5C-1). Second, the sequence shown in Fig. 5 of *Kondo* clearly shows different “code patterns” among the transmitters. *Kondo* does not show or suggest producing a spread signal that is the same in all of the transmitters.

Kondo does not show “modulating a first spreading code onto the data sequence”.

Returning to Fig. 3 of *Kondo*, the “coding section 240” codes the information which is transmitted in the transmission frame (Fig. 4) with the pilot code (PL) to produce a “coded transmission frame.” *Col. 7, lines 59-69*. Further evidence that the PL is part of the spread spectrum signal resulting from the transmission data sequence is that a RAKE receiver is used to detect the data, as discussed in *Col. 9, lines 9-12*:

“Each of the pilot pattern (PL) data decoding sections 470-1 to 470-N function to decode the signal outputted after the rake synthesis for each PL pattern and to extract the mobile station identifier contained in the decoded signal to specify and output a mobile station identification number.”

Fig. 3 shows that the output of the coding section 240 is then processed by the “code spreading section 230”. By comparison, the pending claims recite producing a spread signal by “modulating a first spreading code onto the data sequence.” Thus, where *Kondo* performs coding (box 230) of the transmission data which constitutes the transmission frame, the pending claims of the present invention recite a step of producing a spread signal that does not include a step of modifying the data sequence for the purpose of identifying the transmitter. *Kondo* therefore does not show or suggest this aspect of the present invention.

The present invention is not obvious in view of the cited art.

The additional cited art including *Murai* and *Mahany* do not remedy the deficiencies in the teachings of *Kondo*. Neither *Murai* nor *Mahany* show or suggest "producing a spread signal ... wherein the same first spreading code is used in each of the transmitters". Similarly, neither *Murai* nor *Mahany* show or suggest "modulating a first spreading code onto the data sequence". For at least these reasons, the Section 103 rejection of the claims is believed to be overcome.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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